

Patent
Serial No. 09/837,936
Amendment in Reply to Office Action of August 8, 2005

REMARKS/ARGUMENTS

This Amendment is being filed in response to the Office Action dated August 8, 2005. Reconsideration and allowance of the application in view of the amendments made above and the remarks to follow are respectfully requested.

Claims 1-10 and 12-27 are pending in this application. Claims 1, 12, and 23 are independent claims.

In the Office Action, Claims 1, 12, 13, and 23 are objected due to informalities allegedly present in the claims. The Applicants feel that these claims are generally improper as submitted. However, to further the prosecution of this matter, Claims 1, 12, 13, and 23 are amended herein in accordance with the Examiner's suggestions. These amendments are not intended to narrow the scope of the originally submitted claims and are merely submitted to further prosecution of this matter. It is respectfully submitted that the explanation provided above and the amendments overcome the objections. Accordingly, it is respectfully requested that the objections be withdrawn.

Claims 1-10 and 12-22 are rejected under 35 U.S.C. §112, second paragraph as being indefinite due to a lack of antecedence

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in the claims for the terms "the first packet" and the "last packet". The Claims are amended herein to cure these problems with antecedence. It is respectfully submitted that Claims 1-10 and 12-22 particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Accordingly, withdrawal of the rejection to Claims 1-10 and 12-22 under 35 U.S.C. §112, second paragraph, is respectfully requested.

Claims 1-2, 5-6, 9-10, 12-15, 18, 21-24 and 27 are rejected under 35 USC §103(a) as allegedly being unpatentable over Sisalem (XP-002226884) in view of U.S. Patent No. 5,359,593 to Derby ("Derby"). Claim 3-4, 7-8, 16-17, 19-20 and 25-26 are rejected under 35 USC 103(a) as allegedly being unpatentable over Sisalem in view of Derby and further in view of U.S. Patent No. 5,815,492 to Berthaud ("Berthaud").

Applicants respectfully disagree with, and explicitly traverse, the Examiner's reason for rejecting the claims. However, in the interest of advancing the prosecution of this matter, Applicants have elected to amend the independent claims to more clearly state the invention. More specifically, Applicants have amended Claim 1, for example, to clarify that filtering requires

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filtering out (removing) bandwidth samples from said set of bandwidth samples. No new matter has been added. Support for the amendment may be found in FIG. 4(b) step 230 and the accompanying description on page 8, line 18 through page 9, line 2.

Sisalem shows a system for estimating bottleneck bandwidth to support estimation of the bottleneck bandwidth between a server and a client communication system. Data packets are used as probe packets by the system. The bottleneck bandwidth is calculated as a probe packet size divided by a time gap between two probe packets (see, page 6, lines 8-14).

Derby shows a system for adapting access to a packet communications network having source and destination nodes (see, Col. 19, lines 40-44). Derby uses a leaky bucket protocol where high priority packets (green packets) are given high priority access to the transmission network and low priority packets (red packets) are given low priority and are discarded before green packets when congestion occurs (see, Col. 5, lines 21-30). The transmission characteristics of the network are initially estimated when a new connection is made through the network based on quality

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of service requirements and actual network topologies (see, Col. 5, lines 47-55).

An estimation and adaptation module shown in FIG. 4 uses the initial traffic parameters to calculate an adaptation region shown in figures 5 and 6. Actual traffic is applied to filters 45 and 47 to determine the actual characteristics of incoming traffic to determine whether a bandwidth adjustment needs to be made based on the actual traffic (see, Col. 6, lines 44-55). Filters 45 and 47 are utilized to filter out transient changes in transmission characteristics (see, Col. 6, lines 58-60) prior to making a determination whether the bandwidth adjustment needs to be requested by module 42. The filters 45 and 47 map a current raw measurement with all previous measurements to provide an estimate that is utilized as the filtered value (see, Col. 8, lines 66 through Col. 9, line 3). A fixed confidence filter parameter is utilized to assign a confidence in a present and previous raw measurement and is utilized to determine the estimate for the present raw measurement (see, Col. 9, lines 3-43). The above is how Derby uses the filters 45 and 47 to collect samples over a period of time (see, Col. 9, line 43 through Col. 10, line 25) to

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ensure that the filtered values provided to the module 42 are statistically reliable (see, Col. 2, lines 38-41). Derby makes clear that "statistically reliable" means "that a sufficient number of raw measurements are involved to insure a preselected confidence level in results." (See, Col. 2, lines 38-43.)

Accordingly, Derby does not filter out selected bandwidth samples but merely replaces all raw measurements (samples) with estimates of the raw measurement (see discussion above) based on a confidence filter. Further, the filter is applied on all samples unrelated to any characteristic of the sample.

The method of Claim 1 is not anticipated or made obvious by the teachings of Sisalem in view of Derby. For example, Sisalem in view of Derby does disclose or suggest, a method that amongst other patentable elements, comprises (illustrative emphasis provided) "filtering out bandwidth samples from said set of bandwidth samples based on at least one characteristic of said received bursts, selected ones of said bandwidth samples" as required by Claim 1.

Further, the method of Claim 12 is not anticipated or made obvious by the teachings of Sisalem in view of Derby. For example, Sisalem in view of Derby does disclose or suggest, a method that

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amongst other patentable elements, comprises (illustrative emphasis provided) "filtering out selected bandwidth samples from said computed bandwidth samples, wherein the selection is made according to predetermined criteria" as required by Claim 12.

In addition, the device of Claim 23 is not anticipated or made obvious by the teachings of Sisalem in view of Derby. For example, Sisalem in view of Derby does disclose or suggest, a device that amongst other patentable elements, comprises (illustrative emphasis provided) "means for filtering based on at least one predetermined criterion said generated bandwidth samples to eliminate selected ones of said bandwidth samples from said generated bandwidth samples" as required by Claim 23.

Based on the foregoing, the Applicants respectfully submit that independent Claims 1, 12, and 23 are patentable over Sisalem in view of Derby and notice to this effect is earnestly solicited. Claims 2-10, 13-22, 24-27 respectively depend from one of Claims 1, 12, and 23 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of said claims.

For example, Sisalem in view of Derby does not disclose or

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suggest:

[M]aintaining a bandwidth sample lifetime, wherein the step of filtering comprises the step of: filtering bandwidth samples that have a sample life time greater than a threshold bandwidth lifetime as required by Claim 2 and as substantially required by Claims 15 and 24. Page 6, paragraphs 3-4 of Sisalem are recited as showing this feature. It is respectfully submitted that reliance on Sisalem, in the above section or any other is misplaced. Sisalem merely shows filtering out incorrect estimates of the bottleneck bandwidth by "clustering similar estimates into intervals, and choosing the average of the interval with the highest number of estimates." (See, Sisalem, page 6, lines 21-23.);

[F]iltering [out] bandwidth samples encountering an operating system (OS) delay of said client system as required by Claim 3 and as substantially required by Claim 16. The Office Action relies on Berthaud for showing this feature since "packet samples encountering an OS delay are statistically unreliable and therefore would be discarded from the estimation" (see, Office Action, page 11, lines 9-10). However reliance on Berthaud is misplaced because Berthaud does not filter out bandwidth samples. In fact, Berthaud

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shows a similar mechanism for using estimates of measurements in place of raw measurements as discussed above with regard to Derby. (See, discussion of Derby above.);

[W]herein the bandwidth samples encountering said OS delay is determined based on a quantity difference between an ideal burst duration prior to encountering said OS delay and an actual burst duration after encountering said OS delay as required by Claim 4 and as substantially required by Claim 17. In fact, neither of Sisalem or Berthaud measure burst duration. For example, Sisalem states "[w]e do not include the time between transmission of two probe packets" which is required to determine the burst duration (see, patent application, FIG. 6).; or

[D]etermining to reject a set of bandwidth samples by rejecting bandwidth samples having a retransmitted packet as required by Claim 5 and as substantially required by Claims 18 and 26, or determining to reject a set of bandwidth samples by rejecting bandwidth samples having a missing packet within a corresponding one of said bursts, as required by Claim 10 and as substantially required by Claims 22 and 27. Sisalem again is cited for showing these features but reliance on Sisalem is misplaced in

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that Sisalem explicitly recites drawbacks in their system in that "we do not consider packet drops or competing traffic." (See, page 6, lines 25-28.) Sisalem certainly does not show both a rejecting step and a filtering step!

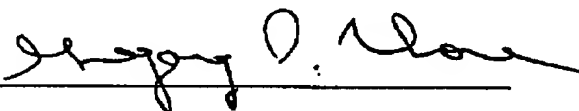
Accordingly, separate consideration and allowance of each of the dependent claims is respectfully requested.

In addition, Applicants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Applicants reserve the right to submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

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Applicants have made a diligent and sincere effort to place this application in condition for immediate allowance and notice to this effect is earnestly solicited.

Respectfully submitted,

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